

2019 SUMMARY OF THE STATE OF MICHIGAN'S AQUATIC INVASIVE PLANT EARLY DETECTION & RESPONSE INITIATIVE

The goal of the Early Detection and Response (EDR) Initiative is to prevent the establishment and spread of aquatic invasive plants on Michigan's watch list and pursue local eradication, when possible and practical.

An invasive species is one that is **not native** and whose introduction **causes harm**, or is likely to cause harm, to Michigan's economy, environment, or human health.



Yellow Floating Heart infestation, Allegan County, MI.

Early detection and response addresses the critical period between introduction and establishment of a new invasive species population – the point when the focus of management shifts from prevention to containment, control, and eradication. The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division leads the Michigan aquatic invasive plant EDR initiative in collaboration with the Department of Natural Resources, Michigan Natural Features Inventory, Michigan State University Extension, and local partners.

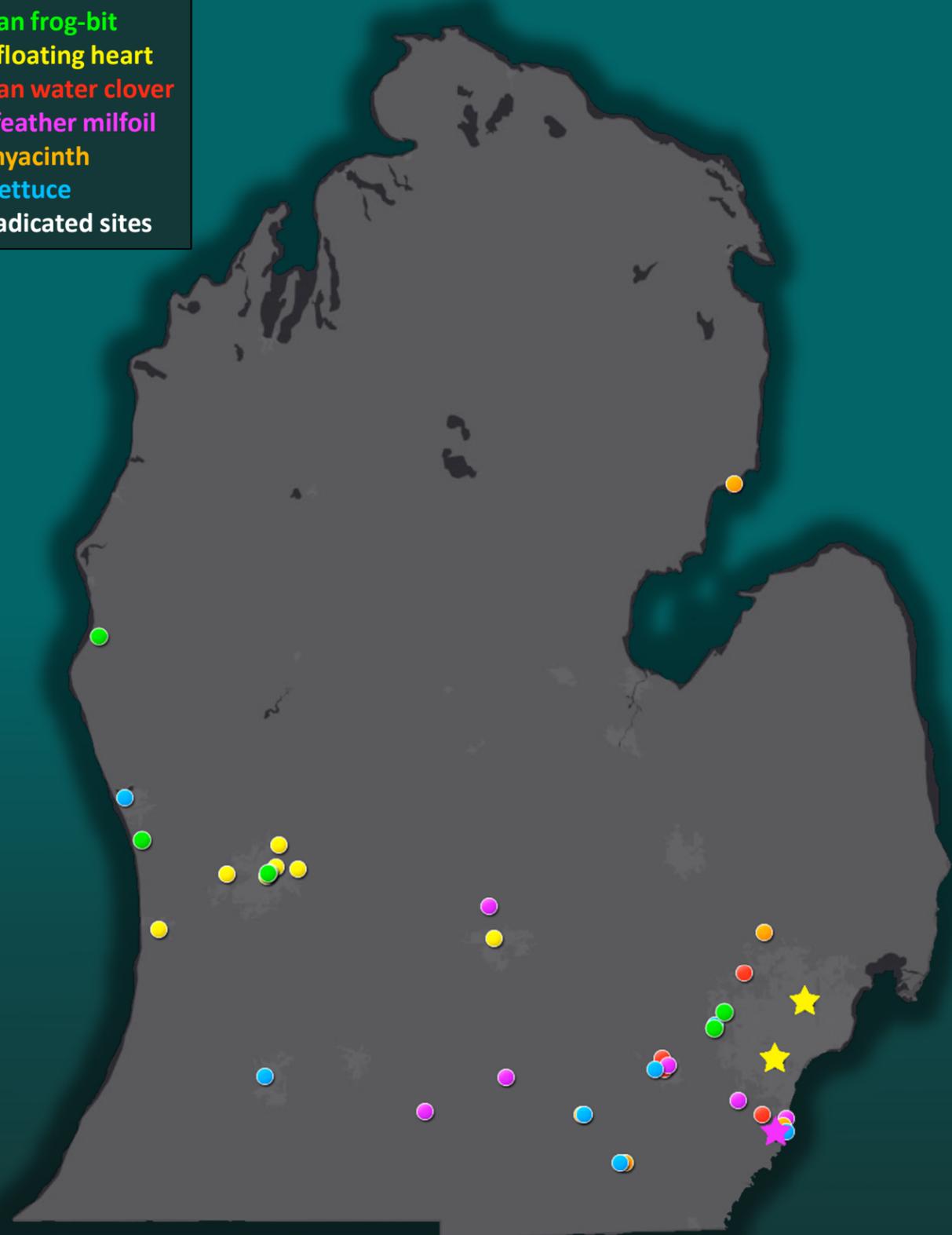
MICHIGAN'S WATCH LIST AQUATIC INVASIVE PLANTS

If you see a watch list aquatic plant growing outside of cultivation, please report it to 517-284-5593 or egle-wrd-anc@mi.gov

Six of the ten watch list aquatic invasive plants have been detected in Michigan. The response actions are catalogued by species on the following pages. No watch list aquatic invasive plants have been reported in the Upper Peninsula outside of established European frog-bit populations in the eastern Upper Peninsula.

For more information on the EDR initiative's efforts visit the EGLE Aquatic Invasive Species Monitoring in Michigan Storymap at <http://arcg.is/1jKCXy> and click on view application.

- European frog-bit
- Yellow floating heart
- European water clover
- Parrot feather milfoil
- Water hyacinth
- Water lettuce
- ★ = Eradicated sites



Michigan's watch list aquatic invasive plants threaten the state's natural resources.

Plants in the red section have not been confirmed in the wild in Michigan. The remaining plants have limited known distribution

European Frog-bit
Hydrocharis morsus-ranae

Yellow Floating Heart
Nymphoides peltata

Water Hyacinth*
Eichhornia crassipes

European Water Clover*
Marsilea quadrifolia

Water Lettuce*
Pistia stratiotes

Water Chestnut
Trapa natans

Hydrilla
Hydrilla verticillata

Water Soldier
Stratiotes aloides

Brazilian Elodea
Egeria densa

Parrot Feather Watermilfoil
Myriophyllum aquaticum

*Indicates plants legal for sale and possession. Response efforts are limited to plants outside of cultivation.

Illustrations by Bruce Kerr

The EDR initiative follows an established policy to appropriately and efficiently respond to new invasions or outlier populations of watch list aquatic plants. The EDR initiative relies on science-based decision-making and engages key stakeholders to help minimize the threat of invasions negatively affecting Michigan's waters. This effort is supported by funding from the Great Lakes Restoration Initiative and State of Michigan general funds.

For more information on Michigan's invasive species efforts visit michigan.gov/invasives



European Frog-bit

Extensive European frog-bit infestations occur along the Lake Huron shoreline from the St. Marys River down to Lake Erie. Control actions are focused on small, outlier populations. A separate collaborative effort is underway to develop and implement a state-wide adaptive management plan for European frog-bit.

Water body	County	Reported	Control action
Reeds and Fisk Lakes	Kent	2016	2016 - 2019
Maybury State Park	Wayne	2018	2019
Oakland County Ponds	Oakland	2018	2019 (partial)
Lower Grand River	Ottawa	2019	In Planning
Pentwater Lake	Muskegon	2019	In Planning



Parrot Feather Watermilfoil

Parrot feather is the first watch list aquatic plant to be successfully eradicated at one site. Parrot feather has not been observed at Crystal Crossing Pond for four consecutive years.

Water body	County	Reported	Control action	Eradicated
Crystal Crossing Pond	Wayne	2013	2013 - 2014	Yes
Trenton Channel	Wayne	2016	2016	
Private Pond	Jackson	2016	2016 - 2019	
Private Pond	Washtenaw	2016	2016 - 2019	
Private Pond	Clinton	2018	2018	
Harvest Lane Pond	Wayne	2018	2018, 2019	
Private Pond	Calhoun	2018	2019	

Yellow Floating Heart

Nearly all yellow floating heart sites are in small private ponds. Control actions are undertaken to ensure this plant does not spread. Two sites are considered eradicated with no plants observed since 2017.

Water body	County	Reported	Control action	Eradicated
UofM Dearborn Pond	Wayne	2015	2015, 2016	Yes
Red Oaks Nature Center Pond	Oakland	2016	2016	Yes
Pioneer Club Road Pond	Kent	2016	2016 - 2019	
Wilderness Trail Road Pond	Kent	2017	2017 - 2019	
Private Pond	Ottawa	2017	2018, 2019	
Lansing Comm. College Pond	Ingham	2017	2018	
Reeds Lake	Kent	2018	2018	
Holland Christian School Pond	Allegan	2018	2019	
Private Pond	Kent	2018	2019	
Versluis Pond	Kent	2019	2019	



Water Lettuce

Recurring plants were observed from 2014-2017 in Frank and Poet Drain. Plants have not been observed at the other sites after a single year of control action.

Water body	County	Reported	Control Action
Frank and Poet Drain	Wayne	2014	2015 - 2017
Asylum Lake	Kalamazoo	2016	2016
First Sister Lake	Washtenaw	2016	2017, 2019
Watkins Lake	Jackson	2017	2017
Maybury State Park	Wayne	2017	2017
Ives Fen	Lenawee	2018	2018
Ruddiman Lagoon	Oceana	2019	2019



European Water Clover

European water clover's invasiveness is questionable. Records indicate populations at the first two sites have been established since the 1960's and 1980's. The EDR initiative has focused efforts on newly discovered outlier populations.

Water body	County	Reported	Control action
Huron River	Washtenaw	2014	
Clinton River	Oakland	2016	
Silver Creek pond	Wayne	2016	2016, 2017
West Park pond	Washtenaw	2018	2018



Water Hyacinth

Recurring plants have been observed from 2014-2017 in Frank and Poet Drain. Plants have not been observed at the remaining sites after a single year of control action.

Water body	County	Reported	Control Action
Frank and Poet Drain	Wayne	2014	2015 - 2017
Lake Sixteen	Oakland	2016	2016
Lake Huron Tributary	Iosco	2017	2017
Watkins Lake	Jackson	2017	2017
Ives Road Fen	Lenawee	2018	2018

Management and monitoring techniques, efforts, and duration vary by species and are based on site specific conditions.

To date, three infestations are considered successfully eradicated. Sites are generally considered eradicated when target plants are not observed for three consecutive years following control actions.

Engaging local stakeholders and aquatic plant management professionals is an essential part of the EDR initiative. Working with property owners, municipalities, and Cooperative Invasive Species Management Areas (CISMAs) increases capacity to respond to infestations, supports consideration of local values, and increases awareness of watch list invasive species. Partners are critical in project planning and execution. Effective partnerships enable the EDR initiative to bring together statewide perspectives and local expertise.



Hand removing parrot feather biomass in Fall of 2017 allowed for improved herbicide treatment in 2018. Only a few stems of parrot feather were found and removed from this site in 2019.



EGLE Water Resources Division staff and West Michigan Cisma staff have been working together since 2016 to eradicate European Frog-bit from Reeds Lake, Kent County.



European Frog-bit herbicide control site in Kent County, MI. A) pre-treatment photo Aug. 8, 2019. B) Post-treatment photo Sept. 4, 2019. White PVC quadrat is used to estimate plant density.

Michigan's Invasive Species Program is cooperatively implemented by the Michigan Departments of Agriculture and Rural Development; Environment, Great Lakes, and Energy; and Natural Resources.



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